

Work Order ID 77770

\*77770\*

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December-21-11 9:29:41 AM

Item ID: D350-748-101

Revision ID: U/R

Item Name: Crosstube Installation, High Fwd

Start Date: 21/12/2011 Start Qty: 1.00 \*1\*

Required Date: 13/01/2012 Req'd Qty: 1.00 \*1\*

Reference:

Approvals: Process Plan: M.L.S Date: 11/12/20 Tooling: Date: Run Start \*NR1\*  
QC: Date: SPC (Y/N): Date: Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D350-748-141	F U/R								

100

\*100\*

DC

Document Control

DOCUMENT CONTROL

Memo

Photocopy bluefile & type labels per P&P D350-748-101

CHG002

SCRAP

110

\*110\*

CNC Bend 1

CNC Delta 100 Bender

BENDING MACHINE - CROSSTUBES

Memo

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

BB

12-1-18

120

\*120\*

QC

Quality Control

QC15- Crosstube Dimensional Check

0.00

0.00

S12/01/18

BB

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action      Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
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Work Order ID 77770

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Item ID: D350-748-101

Accept

\*N900040100\*

Setup

Start

\*NS1\*

Revision ID: U/R

Item Name: Crosstube Installation, High Fwd

Start Date: 21/12/2011 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 13/01/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start

\*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop

\*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

130

\*130\*

Crosstubes

0.00

Crosstubes

Memo

0.00

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B &C Drill Jigs,  
Set-up drill table as per QSI 010

Mo/W

12/1/23

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-141

12/1/24

4-Remove all marks from tube within limits of D350-748-141 Mo

12/1/25

5- Apply a light coat of LPS3 on the interior of tube

Batch: M110 779

Mo

12/1/25

140

QC5- Inspect part completeness to step on W/O

0.00

\*140\*

QC

Memo

0.00

Quality Control

CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

W 12 01 25 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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W/O:		77770	WORK ORDER CHANGES				
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-745-101 PAR #: \_\_\_\_\_ Fault Category: *Landing gear/crank* NCR:  Yes No DQA: *Shuk* Date: *12/03/16*  
*+Design*  
*Resolution: scrap* Disposition: *Scrap* QA: N/C Closed: *C* Date: *12/7/16*

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12/03/12	100	tube cracked / Broken while at cos plating R.C. Process.	<i>AB</i> 12/03/12 <i>Scrap</i>	Scrap + Destroy no Replace.	MO 12/3/13	<i>12-3-13</i>	<i>AB</i> 12/03/12 <i>Scrap</i>	<i>S</i> 12/3/12

NOTE: Date & initial all entries

Work Order ID 77770

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Item ID: D350-748-101

Accept

\*N900040100\*

Setup

Start

\*NS1\*

Revision ID: U/R

Item Name: Crosstube Installation, High Fwd

Stop

\*NS2\*

Start Date: 21/12/2011 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 13/01/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

\*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop

\*NR2\*

Sequence ID/  
Work Center ID  
180

\*180\*

SprayPaint

Operation  
Description

Set Up/  
Run Hours  
0.00

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside crosstube as per QSI 005 4.2  
2-Prime Outside of Tube as per Dart QSI 005 4.2

190

QC14- Inspect Spray Paint

0.00

\*190\*

QC

Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

200

\*200\*

Crosstubes

Crosstubes

0.00

Crosstubes

Memo

0.00

1-Install Ground wire Insert,then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141,Torque to 60-80 IN-LBS

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Item ID: D350-748-101

Accept

\*N900040100\*

Setup Start

\*NS1\*

Revision ID: U/R

Item Name: Crosstube Installation, High Fwd

Stop \*NS2\*

Start Date: 21/12/2011 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 13/01/2012 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start

\*NR1\*

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

\*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00

\*210\*

QC

Quality Control

220

Pick Kit

0.00

\*220\*

Packaging

Packaging

Memo

0.00

230

QC4- 100% Inspect kits for completeness

0.00

\*230\*

QC

Quality Control

Memo

0.00

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**Item ID:** D350-748-101

Accept

**\*N900040100\***

Setup

Start

**\*NS1\***

**Revision ID:** U/R

**Item Name:** Crosstube Installation, High Fwd

Stop

**\*NS2\***

**Start Date:** 21/12/2011 **Start Qty:** 1.00

**\*1\***

**Cust Item ID:**

**Required Date:** 13/01/2012 **Req'd Qty:** 1.00

**\*1\***

**Customer:**

**Reference:**

**Approvals:** Process Plan:

Date:

Tooling:

Date:

Run

Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

**Sequence ID/  
Work Center ID**

**Operation  
Description**

**Set Up/  
Run Hours**

**Tool ID**

**Tool #**

**Plan  
Code**

**Accept  
Qty**

**Reject  
Qty**

**Reject  
Number**

**Insp.  
Stamp**

240

**\*240\***

Packaging

Packaging

0.00

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D350-748-101  
Location: \_\_\_\_\_  
PPP Rev: \_\_\_\_\_

250

QC21- Final Inspection - Work Order Release

0.00

**\*250\***

QC

Quality Control

Memo

0.00

12-03-13  
P

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

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Work Order ID: 77770

**\*77770\***

Parent Item: D350-748-101

**\*D350-748-101\***

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 21/12/2011

Required Date: 13/01/2012

## Comments:

IPP Rev:A New Issue 06-07-05 JLM  
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev:C Rev B 07-11-15 DD  
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F  
 10.08.04 added QSI010 4.3 DD verf:EC

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-141TRN		Manufactured	No			110	Each	0.0000	1	1			

**\*D350-748-141TRN\***

Crosstube Turning Detail

ALS4-1032-225

**\*AI S4-1032-225\***

Insert

Location	Loc Qty	Loc Code
ST281	1348	
108696	199	
110768	62	
118386	858	
118966	229	

AN960JD10

NAS1149D0363J

Purchased

No

200

Each

0.0000

1

1

\*\*

**\*AN960.JD10\***

Washer

D2856-400

Manufactured

No

200

f

200.2721

1.181

1.243158

\*\*

**\*D2856-400\***

Abraison Strip

Location	Loc Qty	Loc Code
ST409	200.2721	
63735	0.6696	
68076	0.3149	
71164	21.66	
73491	177.6276	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Work Order ID: 77770

\*77770\*

Parent Item: D350-748-101

\*D350-748-101\*

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 21/12/2011

Required Date: 13/01/2012

Start Qty: 1.00

Required Qty: 1.00

D3502-1

Manufactured

No

200

Each

23.0000

2

2

\*\*

\*D3502-1\*

Support

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST063	23	_____
72129	3	_____
73419	20	_____

MS21920-20

Purchased

No

200

Each

60.0000

2

2

\*\*

\*MS21920-20\*

Clamp (per MIL-DTL-8783C)

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG050	60	_____
116799	10	_____
119386	50	_____

MS27039-1-10

Purchased

No

200

Each

41.0000

1

1

\*\*

\*MS27039-1-10\*

Screw

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST291	41	_____
119307	3	_____
119531	38	_____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**Work Order ID:** 77770**\*77770\*****Parent Item:** D350-748-101**\*D350-748-101\*****Parent Item Name:** Crosstube Installation, High Fwd**Start Date:** 21/12/2011**Required Date:** 13/01/2012

AN4-41A

Purchased

No

220

Each

285.0000

8

8

**\*AN4-41A\***

Bolt

**\*\***

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST360	285	
115108	3	
115705	7	
117619	50	
117795	25	
118451	50	
118838	50	
119328	100	

AN4-6A

Purchased

No

220

Each

4,130.000

16

16

**\*AN4-6A\***

Bolt

**\*\***

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST356	4130	
119017	4130	

AN5-32A

Purchased

No

220

Each

231.0000

4

4

**\*AN5-32A\***

Bolt

**\*\***

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST339	231	
118422	6	
118628	50	
118983	25	
119328	100	
119862	50	

AN960JD416

NAS1149D0463J Purchased

No

220

Each

0.0000

32

32

**\*AN960.JD416\***

Washer

**\*\***

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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MS21042L5

Purchased

No

220

Each

2,130.000

4

4

**\*\*****\*MS21042L5\***

Nut

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST300	2130	
116105	5	
116548	43	
117611	52	
118179	496	
118910	34	
119109	1500	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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DART AEROSPACE LTD

Work Order: 77770

Description: Crosstube High Fwd (AS350/355)

Part Number: D350-748-101

Inspection Dwg: D350-748-141

Rev: F

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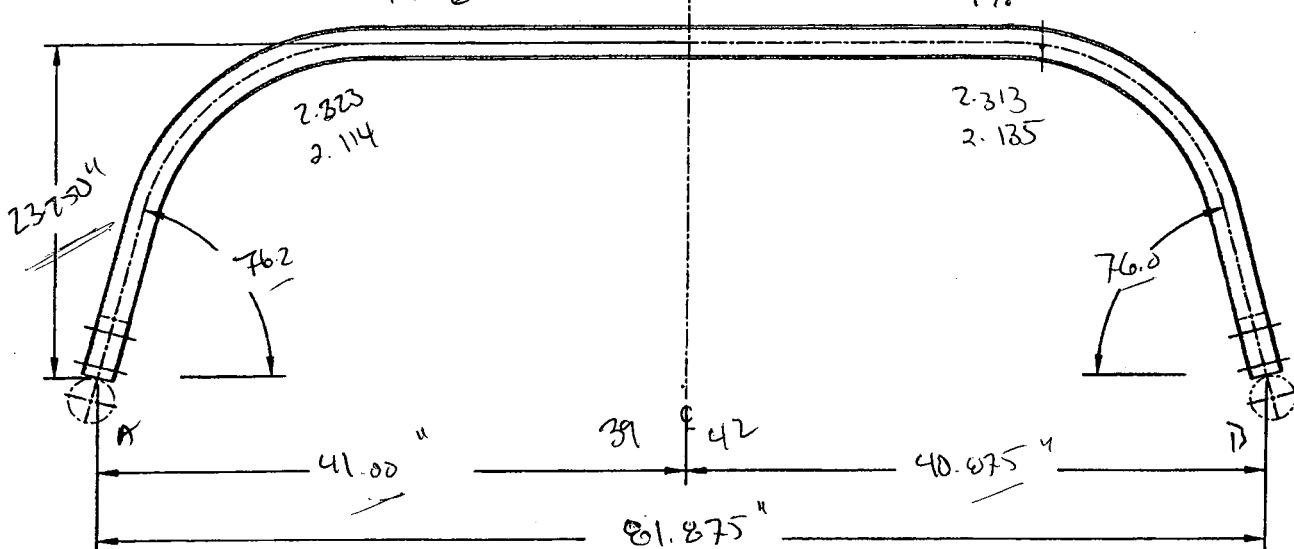
Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04

209 ± 4.437

4.7%

178 ± 4.448

4.7%



Comments
$\text{twist} = .241$
Sine A = 4.7% crush @ 39 Passes.
Sine B = 4.7" crush @ 42 Passes.

QC15 Inspection	8
Date	12/01/18

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	11.11.07	Dwg Rev updated	KJ	JK AD

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

Item	Qty	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6015-125	CROSSTUBE (OR D6017-115)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115  
FINISHED LENGTH =  $110.270 \pm 0.06$
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF  
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.  
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO  
BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO  
VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE,  
CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES,  
NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY.  
CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE  
MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO  
CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT  
NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN  
CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

BY  
UP  
SUB  
WHT  
WORK  
NO. 77770 M.L.J  
11/12/12

UNDER REVIEW

11/07/12

RELEASED  
2011-01-18

F	ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6017-115 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	REV. F	SHEET 1 OF 4
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.	TITLE CROSSTUBE (AS 350/355 HI FWD)	SCALE NTS	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS THE CONFIDENTIAL PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.
DATE	10.11.23		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

77770

BB

WW

CC

8 7 6 5 4 3 2 1

D

D

C

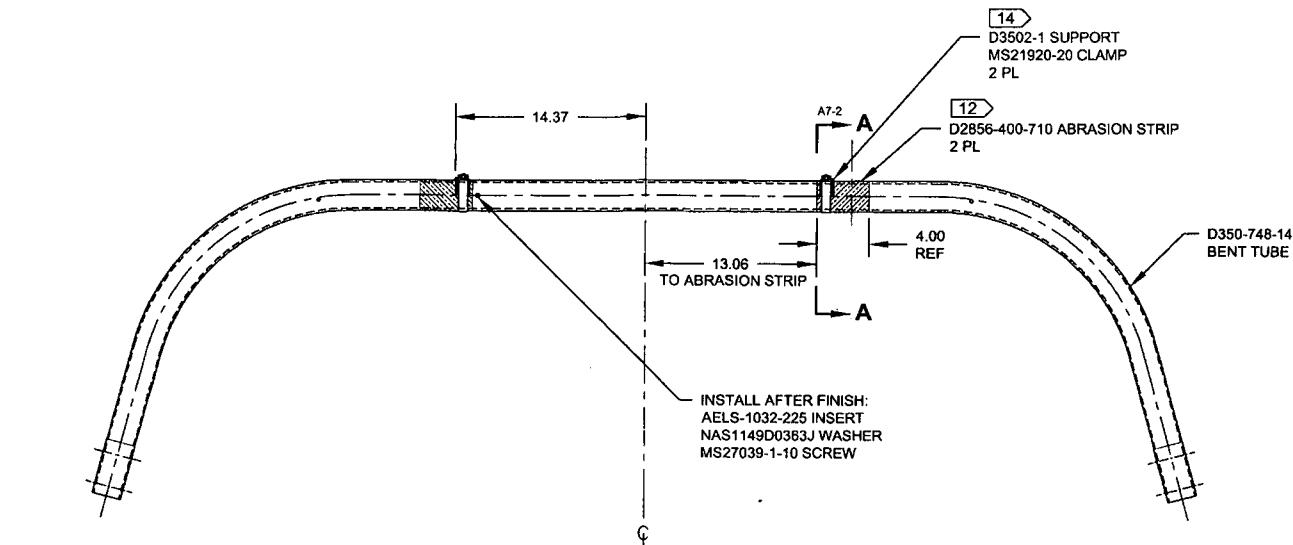
C

B

B

A

A

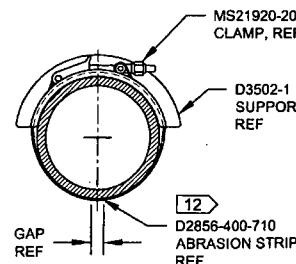


**D350-748-141**  
**ASSEMBLY DETAIL**

UNDER REVIEW

11.07.11

RELEASED  
2011-01-18



**SECTION A-A** D4-2  
SCALE 4X

DESIGN	<i>[Signature]</i>	<b>DART AEROSPACE LTD</b>
DRAWN	<i>[Signature]</i>	HAWKESBURY, ONTARIO, CANADA
CHECKED	<i>[Signature]</i>	DRAWING NO.
MFG. APPR.	<i>[Signature]</i>	REV. F
APPROVED	<i>[Signature]</i>	D350-748-141
DE APPR.	<i>[Signature]</i>	SHEET 2 OF 4
DATE	10.11.23	TITLE
		CROSSTUBE (AS 350/355 HI FWD)
		NTS

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8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

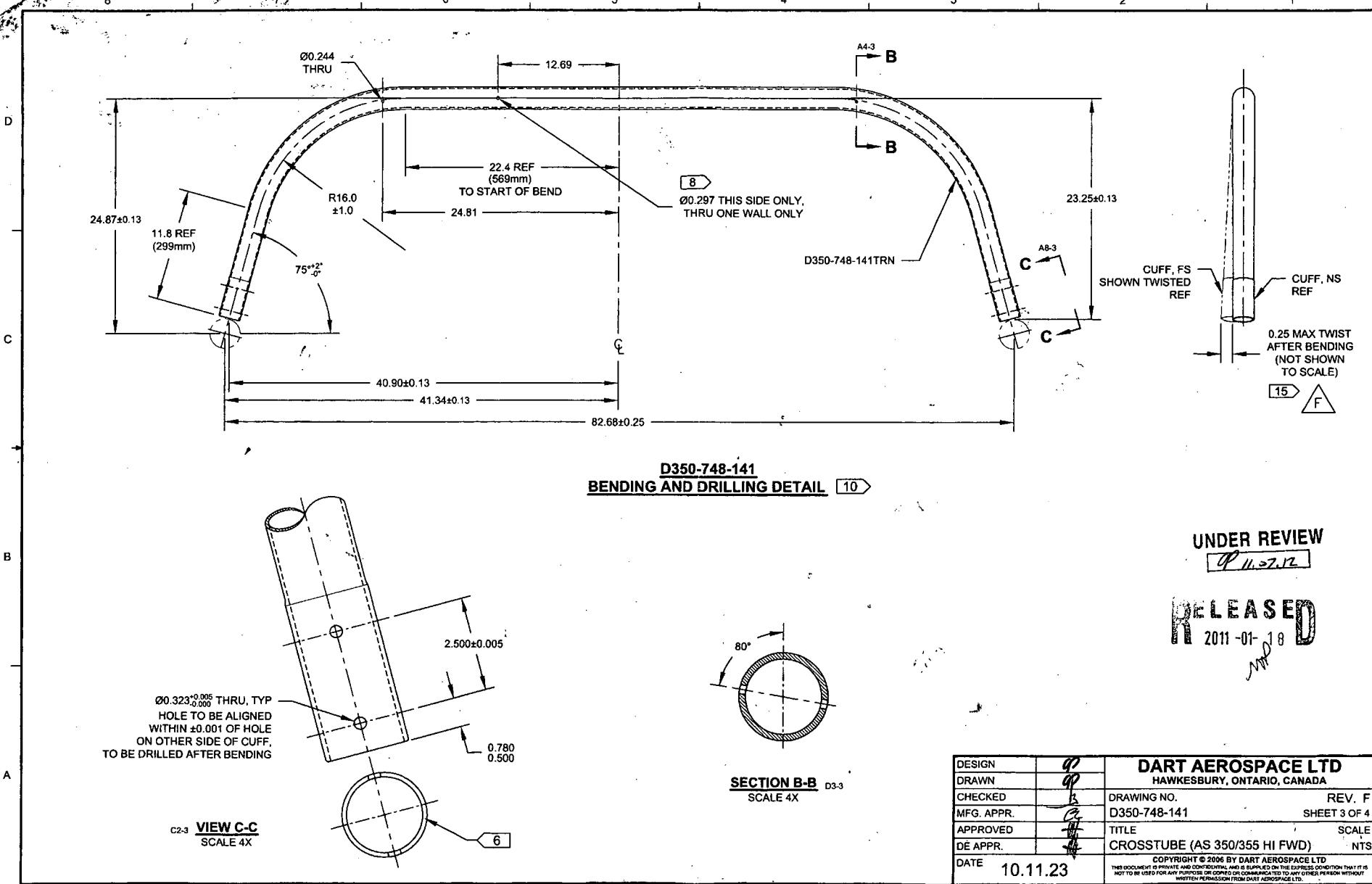
NOTE: Date & initial all entries

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RW

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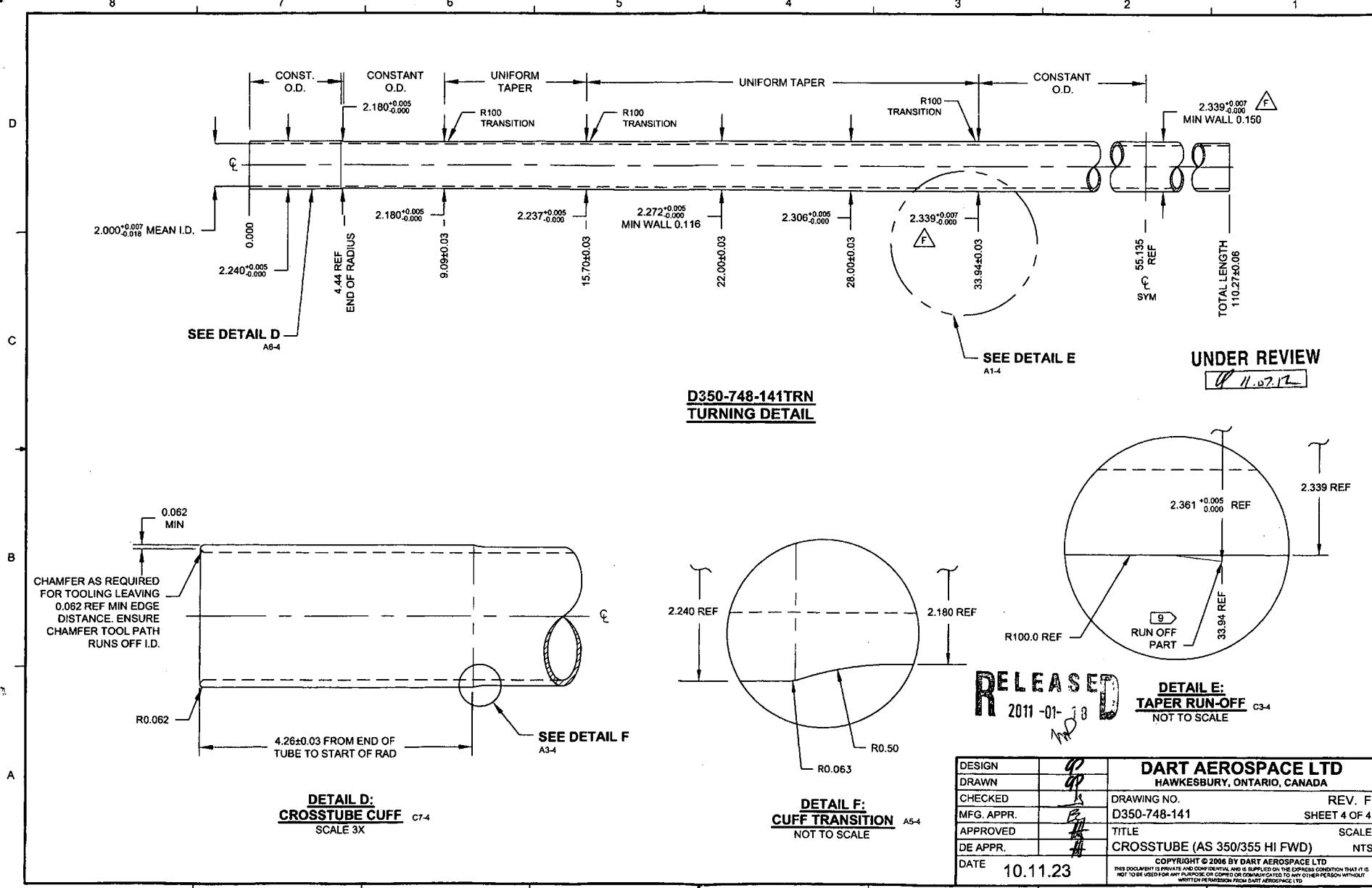
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

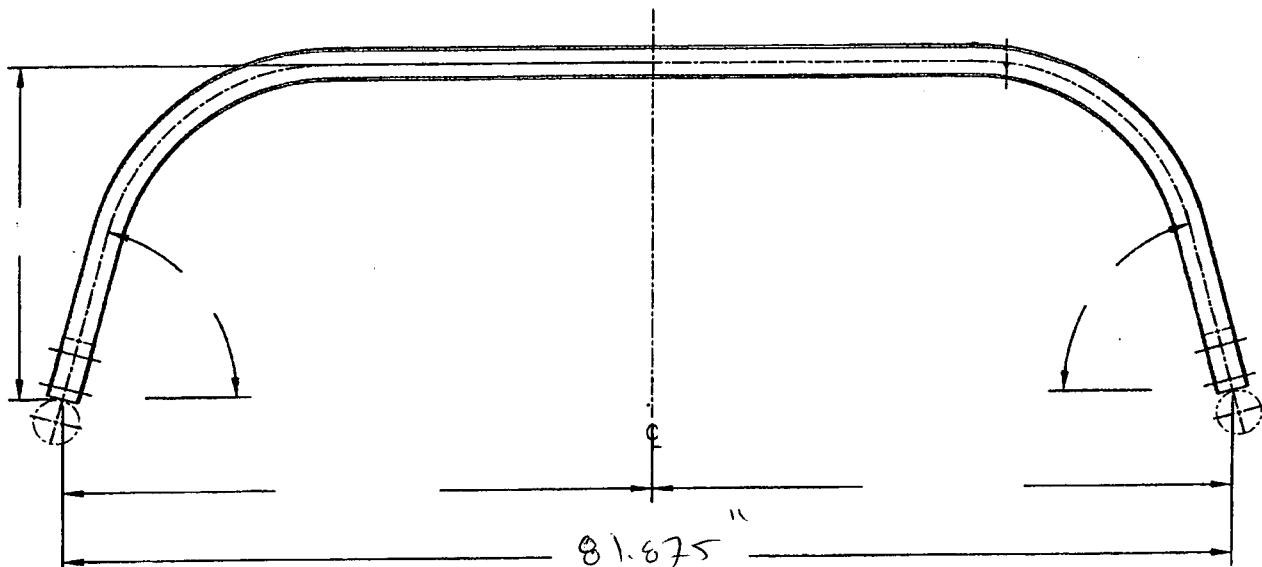
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	77770
Description: Crosstube High Fwd (AS350/355)	Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: F		Page 1 of 1

For Stress Relief

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments	
twist = 0.243"	

QC15 Inspection	S
Date	17/01/19

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	11.11.07	Dwg Rev updated	KJ	JK AJ

CADORATH GROUP  
**NON CONFORMANCE REPORT**

CADORATH AEROSPACE



CADORATH DISTRIBUTION



CADORATH COATING



UNIFLYTE



NOTE: THIS FORM MUST BE COMPLETED BY: CUSTOMER  VENDOR  BEFORE PROCESSING OF PART(S)

NCR#: C1115

CUSTOMER:  Dart Aerospace Ltd.

DATE: 02/24/12

VENDOR:  N/A

CADORATH/UNIFLYTE P/O #:

N/A

PART DESCRIPTION: Skid (Crosstube)

CADORATH/UNIFLYTE W/O #:

111679/80/81/82/86

CUSTOMER P/O #: PO 15990

PART #: D350-748-101

SERIAL #: 77767, 77768, 77769, 77770 and 76254

QUANTITY: Five (5)

PURCHASE ORDER INSTRUCTIONS: MPI and Cad Plate

DISCREPANCY: These parts failed our MPI test after plating. They all have cracks. The parts were shipped back to your facility as of February 24, 2012.

Nick Wasyluk (QA Manager)

CADORATH/UNIFLYTE INSPECTION DEPARTMENT

CI

14

02/29/12

CUSTOMER:

PLEASE COMPLETE THIS PORTION, SIGN AND RETURN TOP COPY OF THIS FORM TO CADORATH/UNIFLYTE

VENDOR:

DATE: 02/24/12

P/O: PO 15990

CUSTOMER INSTRUCTIONS:

ATTENTION: Chantal Lavoie

VENDOR CORRECTIVE ACTION:

Since the 5 parts were returned, this NCR is the notification that they were sent back for your evaluation.

On your behalf,

AUTHORIZED SIGNATURE

CI

14

02/29/12

Nick Wasyluk (QA Manager)

NAME AND TITLE

DATE: 10/13/10

FORM: OPS 097

REVISION: 3

